Math 151B Chapter 4 Sample Test  Name _______________________________

I. Evaluate the following. Write answers as integers or reduced fractions. 3 pts ea

1. \(-5^2\)  
2. \((-5)^2\)  
3. \(5^0 + (-5)^0\)

4. \(5^{-2}\)  
5. \((-5)^{-2}\)  
6. \((3)^2 \cdot (3)^{-5}\)

7. \(\frac{3^7}{3^3}\)  
8. \((3^{-1})^2\)

II. Scientific notation:

1. Write 576,000,000 in scientific notation.  
2. Write 0.0000576 in standard notation.

III. Perform the indicated operations. 6 pts ea.

1. \((3x^{-2}y^3)^2 \cdot (4x^3y^{-4})\)  
2. \(\frac{(2x^3y^{-2})^{-3}}{5xy^3}\)

3. \(-3x^3(x^2 - 5x + 6)\)  
4. \((3x + 5)(x - 4)\)

5. \((x^2 + 5)(x^2 - 5)\)  
6. \((2x + 3)^2\)

7. \((2x + 3)(x^2 - 4x + 5)\)  
8. \(\frac{10x^4y^3 + 6x^3y - 5x^2}{2x^3y}\)

9. \(\frac{6x^2 + x - 15}{2x - 3}\)  
10. \(\frac{8x^3 + 125}{2x + 5}\)

IV. Given the polynomial: \(f(x) = x^3 - 3x^2 + 5\)

1. It is classified as a __________ degree, ___________________________. 2 pts

2. Complete the table and graph the polynomial. 8 pts

<table>
<thead>
<tr>
<th>(x)</th>
<th>(f(x))</th>
<th>((x, y))</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>